

PROGRESS REPORT No. 2
Contract No. 14-35-0001-31051

**Design of a Monitoring Protocol/Plan for Environmentally Sound
Management/Development of Federal Offshore Borrow Sites**

To: Barry Drucker
From: Jacqueline Michel
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This report covers the period 16 June to 8 September 2000.

On 7-8 September, the Interim Team Meeting was held in Herndon, Virginia. In attendance were Barry Drucker (MMS), Jacqui Michel (Research Planning, Inc.), Rob Nairn (Baird & Associates), Jay Johnson (Applied Marine Science, Inc.), and Richard Newell and L.J. Seiderer (Marine Ecological Surveys, LTD). The interaction with Newell and Seiderer, who have been studying the impacts of aggregate dredging in the North Sea, was very important. We are now better able to extract lessons learned from the North Sea studies and apply them to the sand borrow sites along the East and Gulf of Mexico coasts.

Summary of Work Accomplished by Task:

Task 1 – Design Protocols for Field Monitoring Systems to Evaluate Physical and Biological Effects

Task 1.1 Literature and Data Review - 90% complete. We have completed the review of studies of each of the potential borrow sites. Most of the sites (especially along the East coast) appear to be relict shoals and ridges that are disconnected from the nearshore littoral drift system, although some sites are extensions of ebb-tidal deltas. We have expanded our literature search to gather additional data on the physical and biological characteristics of shoals, since shoal morphology and exposure are likely to influence spatial variations in benthic communities and degree of re-working by storm events.

Task 1.2 Define Long List of Parameters - 80% complete. The current list of parameters was presented and discussed at the Interim Team Meeting on 7-8 September. Our focus has been the integration of physical and biological parameters in order to better detect or predict significant changes. We need to provide a definition for "recovery".

Task 1.3 - Define Spatial/Temporal Boundaries for Key Parameters - 50% complete. Much of the discussion at the Interim Team Meeting concerned this component of the study. Use of predictive models will be essential for optimizing sampling locations. Based on the experience

in the U.K., it is important to consider tidal current directions and tidal excursion in the study design, with stations both parallel and perpendicular to the dominant current directions. The spatial boundaries will also be a function of the morphology of the borrow site, particularly for shoals and ridges.

MMS indicated that they expect some sites to be accessed every two years, so monitoring duration will have to consider this.

Task 1.4 - Adverse Impacts Monitoring - 30% complete. We have defined this as monitoring to be conducted as part of an emergency dredging action, where additional monitoring is required as a form of mitigation.

Task 1.5 - Methods to Measure - 50% complete. We are developing written protocols for each of the key parameters. We are evaluating the benefits of sediment profile imaging (SPI) as a possible technique, and whether protocols for interpreting the photographs can be standardized so that there is more consistency among researchers.

Task 1.6 Synthesis of Protocols - 25% complete. We will complete the flow diagrams and rationale for the proposed protocols shown at the Interim Team Meeting.

Task 1.7 Workshop and Quality Review Board (QRB) Meeting - 10% complete. The workshop will be held on 12 December at the Virginia Institute of Marine Science. We will prepare a draft Project Description and agenda for the workshop. The objective of the workshop is to get scientific review of the proposed monitoring protocols before the first draft report is prepared.

Task 2 – Additional Data for OCS Sand Borrow Areas - 0% complete. One of the more important data gaps may be an understanding of the morphology/morphodynamics of OCS ridges and shoals. Our plan for this task is to have Miles Hayes, who has studied the impacts of hurricanes on shelf sedimentation, to review the literature and site data to develop a good definition for these kinds of shoals and ridges, confirm that they are relict, and determine if and how they are mobilized.

Task 3 – Evaluate the Feasibility/Desirability/Appropriateness of Implementing the Monitoring System

Task 3.1 – Data Gap Analysis for Baseline Data - 20% complete. We have noted data gaps during the literature and data review.

Task 3.2 – Cost of Filling Gaps for Baseline Data - 0% complete. We will begin this work once the data gaps have been finalized.

Task 3.3 – Cost of Ongoing Monitoring - 0% complete.

Task 3.4 – Assess the Impact of Dredging Methods and Other Factors on Data

Requirements and Costs - 10% complete. We have identified the types of dredging equipment likely to be used in the US.

Task 3.5 - Preliminary Scoping and Demo of System - A centralized system for managing monitoring data of the borrow sites is essential, particularly to identify cumulative impacts from repeated dredging of sites. The protocols must include standard formats for data delivery and metadata.

Task 4 – Feasibility of Developing Regional OCS Sand Management Strategies

Task 4.1 – Identify Areas and Agencies - 5% complete. At the Interim Team Meeting, it was decided that the two pilot areas would be New Jersey (with a strong CORPS involvement in OCS sand management) and Texas (where the State is taking the lead in managing OCS sand resources).

Task 4.2 – Conduct Interviews - 5% complete. Data gaps identified during the Interim Team Meeting to be raised during the interviews: utilization of the borrow sites by the commercial fishery (that is, are they targeted?); rate of trawling over these areas, as one type of man-made sediment disturbance; and any information on use of the shoals and ridges for fish migration/navigation.

Task 4.3 – Synthesize Results and Prepare Report - 0% complete.

Task 4.4 – Prepare for and Conduct Workshops - 0% complete.

Task 4.5 – Prepare Year 1 Report - 0% complete.

5. Identifying Participants in the Regional OCS Sand Management Process - 0% complete. This task to be conducted if it is determined to be feasible.

Potential Problems Encountered:

None to-date.

Key Decisions Made:

The Task 1 Workshop and QRB meeting has been set for 12 December, with a Project Team meeting on the morning of 13 December. The location will be at the Virginia Institute of Marine Science.